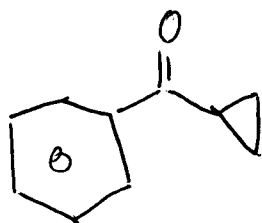
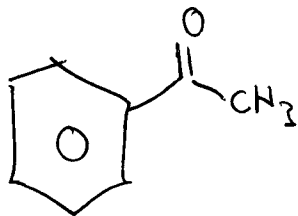


6.3, b)



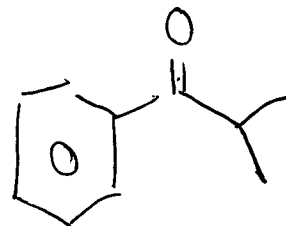
$pK = 28.2$

(A)



$pK = 24.7$

(B)



(C)

The cyclopropane ring is strained, exhibiting a  $60^\circ$  C-C-C angle. Deprotonation and exchange requires the C-atom to be  $sp^2$ -hybridized and, therefore, exhibit a  $120^\circ$  angle. A  $120^\circ$  angle in (A) is not possible; thus (A) is less acidic than (B) and exchanges slower than (C).

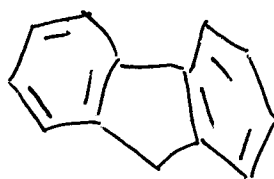
c)



$pK 18.0$



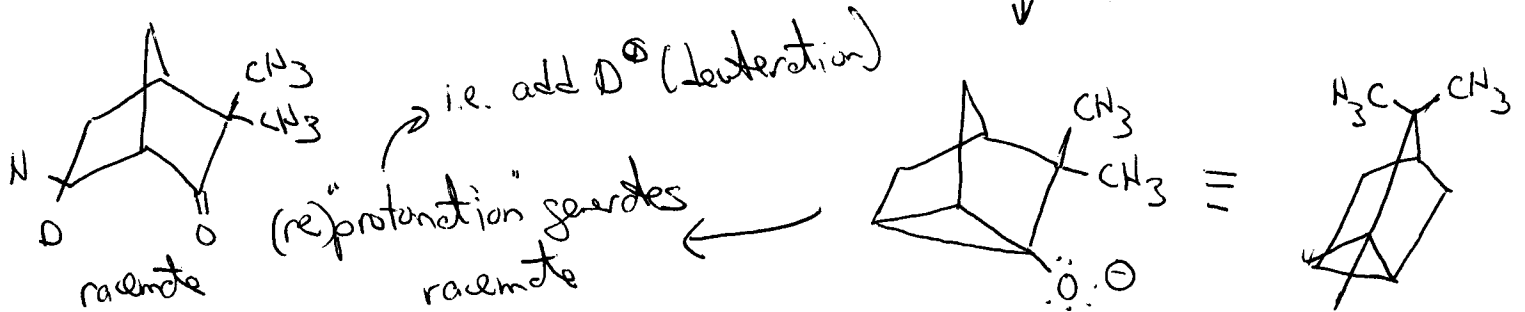
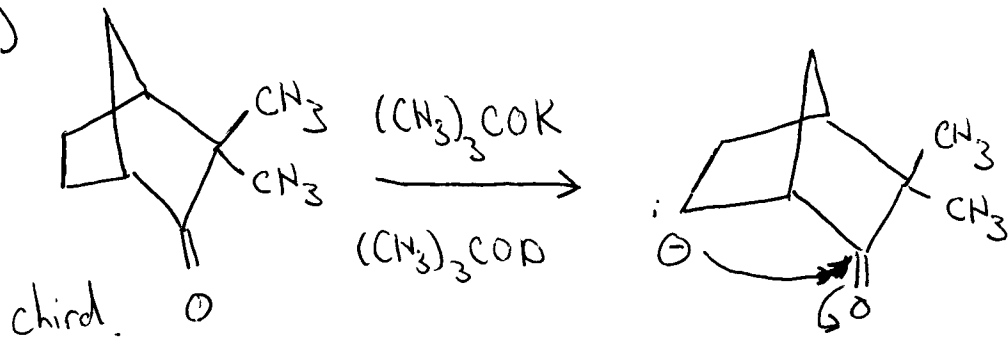
$pK 20.1$



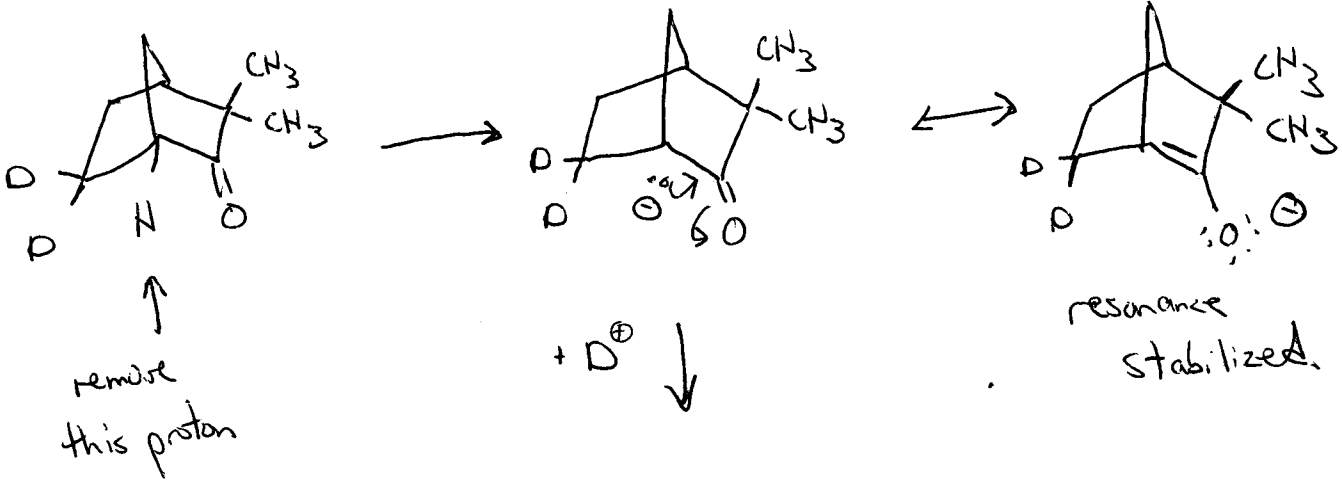
$pK 22.6$

All compounds are relatively acid since removal of one proton from each 5-membered ring produces an aromatic ring system. The additional benzene rings serve to diffuse the  $-1$  charge. This means that the ring systems are less able to be solvated, which makes cyclopentadiene more acidic.

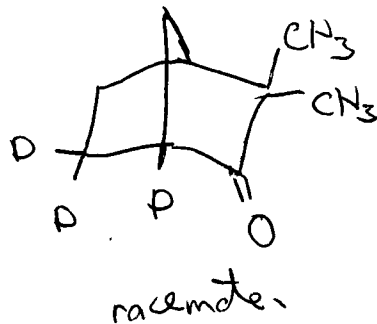
6.4.b)



second time around



remove this proton



6.10. The high acidity of Meldrum's acid is the result

of : i) stabilization of the carbanion by the carbonyl groups and

ii) restricted rotation of the atoms of the six-membered ring, which provides optimal overlap of the p-orbitals.

Acyclic analogs (e.g. dimethyl malonate) are too flexible.

Larger ring systems are also too flexible.